

# **This Former Spirent Business is Now Part of VIAVI**

Contact Us +1 844 GO VIAVI | (+1 844 468 4284)

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# Spirent TTsuite-WAVE-LTEV

## Overview

TTsuite-WAVE-LTEV is a solution for signalling protocol testing of C-V2X devices that implement the US V2X protocol stack over LTE-V PC5 interface. It contains a set of automatically executable test scripts for the Wireless Access in Vehicular Environments (WAVE) standard (as defined by OmniAir) for validating compliance of On-Board Units (OBU) and Road-Side Units (RSU) to IEEE and SAE standard specifications.

The solution helps ensure cross-vendor interoperability of on-board and road-side units supporting those standards.

## Features

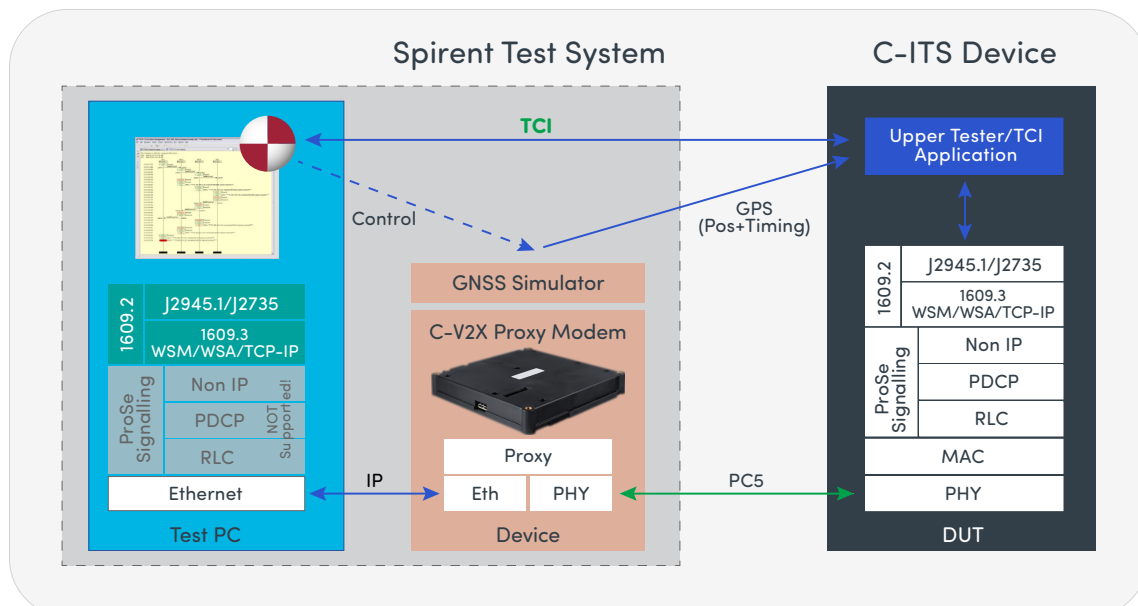
- USDOT Certification Operating Council (COC) Conformance Test Suite for Wireless Access in Vehicular Environments (WAVE)
- WSM/WSA packet validation
  - Secured/unsecured reception/transmission of WSM/WSA packets
  - Communication using IPv6
- Full test automation via Test Control Interface (TCI)
- Freely combinable with additional test access (TTplugins)
- Simulated mobility either via Automated Spirent GNSS Simulator Equipment Remote Control or TCI

## Target Audience

- Companies supplying or testing C-V2X WAVE-LTEV technology

## Base Specifications

- SAE J2945.1
  - On-board system requirements for V2V Safety Communications
- SAE J2735
  - Candidate Improvements to Dedicated Short Range Communications (DSRC) Message Set Dictionary [SAE J2735] Using Systems Engineering Methods
- IEEE 1609.2-2016
  - IEEE Standard for Wireless Access in Vehicular Environments
  - Security Services for Applications and Management Messages
- IEEE 1609.3-2016
  - IEEE Standard for Wireless Access in Vehicular Environments
  - Networking Services



### Benefits

- Ensure the conformance of an implementation or a system based on USDOT/OmniAir test specifications
  - Required for USDOT certification
- Fast and simple test execution and analysis
- Repeatability of tests and full support of test automation
- Platform independence and rapid integration in existing test environments
- Flexibility through usage of the constantly evolving standardized test notation TTCN-3

### Scope of Delivery

- C-V2X LTE-V Modem hardware device as radio proxy

### Reference Platforms

- Java 8
- Microsoft Windows 7/8/10
- Linux (GTK2, x86-32, x86-64)

### Test Specifications

| Standard          | Description                                                                                                                                                                                                                  |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WAVE-16092-TSS&TP | Conformance test specifications for Wireless Access in Vehicular Environments (WAVE) <ul style="list-style-type: none"><li>• Security Services</li><li>• Test Suite Structure and Test Purposes (TSS &amp; TP)</li></ul>     |
| WAVE-16093-TSS&TP | Conformance test specifications for Wireless Access in Vehicular Environments (WAVE) <ul style="list-style-type: none"><li>• Networking Services</li><li>• Test Suite Structure and Test Purposes (TSS &amp; TP)</li></ul>   |
| J2945/1-TSS&TP    | Conformance test specifications for SAE J2945/1 <ul style="list-style-type: none"><li>• On-Board System Requirements for V2V Safety Communications</li><li>• Test Suite Structure and Test Purposes (TSS &amp; TP)</li></ul> |
| RSU4.1-TSS&TP     | Conformance test specifications for RSU4.1 V2I v1.0 <ul style="list-style-type: none"><li>• RSU4.1 V2I</li><li>• Test Suite Structure and Test Purposes (TSS &amp; TP)</li></ul>                                             |

### Ordering Information

| Product Number      | Description                                |
|---------------------|--------------------------------------------|
| TEC-SUITE-WAVE-LTEV | TTsuite-WAVE-LTEV                          |
| TEC-SVC-1015-TS-1Y  | TTsuite support and maintenance 1 year     |
| TEC-TT-WP           | TTworkbench Professional                   |
| TEC-SVC-1015-WB-1Y  | TTworkbench support and maintenance 1 year |